

Third West Weekly Report Shepherd, Michael

124 1233 - R8 SDMS

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)' 04/12/2012 11:21 AM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)" <cbarnitz@utah.gov>

7 Attachments

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Weekly Report 04-02 to 04-06-12.pdf Third West Weekly Log 2012-14.pdf 232990-1.pdf 233046-1.pdf 233126-1.pdf

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233221-1.pdf 233311-1.pdf

Joyce & Craig,

Attached are the reports for the week of April 2, 2012.

We had a positive hit of chrysotile Thursday last week.

Please let me know if you have any questions.

Thanks,

Mike Shepherd
Project Manager
Rocky Mountain Power - Major Projects
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3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DATE I CHECKETOT
DATE:_	04/02/11
Gene	eral
	Vork area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA NA NA	Site hazard and safety instruction for all first time employees, contractors or visitors Complete Employee Meeting Record Form B (where applicable) Document required Respirator Training completion with Form H
NA .	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
	Complete all CSHASP Forms (for applicable activities planned for that day) IA Illness/Injury Report Form A
N	NA Site-Specific Training Record Form C
N	NA Hot Work Permit Form D
	Trench/Evacuation Permit Form E
	NA Combined Space Entry Permit From F
. [·
	☑ Decontamination unit is working properly.
	☑ Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
	Secure the site at the end of the workday
<u>Sam</u>	pling
NA S	Soil Confirmation sampling for any newly excavated areas
₫	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA.	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel





☑		Electronically file photo files into the on-site database
7		Complete Field Documentation
	\Box	Field Sample Data Sheets (FSDS)
		Logbook
	\square	On-site computer database
\checkmark		Label each sample media with a unique number
		Seal sample(s) in zip lock plastic bags
7		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
☑		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
$\overline{\mathbf{A}}$		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 04/02/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: <u>Justin Kargis</u>	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	-
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	,
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			,

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	х			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	х			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	х			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			х	*
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active once excavations began.

EZ was divided into two sections again - some in the north arm and the area around the stockpile of native material. Some traffic between these two areas for both suited and non-suited workers from different contractors occurred. Newman removed native material from around the vaults as they began trenching for the 12.5 kV conduit runs. Some clean material was saved but clean fill that had mixed with native was stockpiled for removal.

CVE line crew continued attaching equipment to structure steel and assembling buss work.

CVE fabricators tied rebar for capacitor bank in the afternoon.

Weather was mild, dry, and slightly breezy. Overcast skies in the a.m. with temperatures in the mid 50s.



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
DATE	::	04/03/11
Ge	neral	
		area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
		activities for the day
NA	A	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	\	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	\	Complete Employee Meeting Record Form B (where applicable)
NA	1	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
		manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	\square	Exclusion zone operations are practiced as instructed.
		☐ Decontamination unit is working properly.
		✓ Workers are using decontamination unit as instructed.
		☑ Workers use personal protective equipment properly.
☑		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fingitive materials i.e. watering excavation sites and track out prevention.
☑		Review sign-in/sign-out log throughout and at the end of the workday. Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil Co	onfirmation sampling for any newly excavated areas
Ø		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	4	Digitally photograph each sample location and at any place field sampling personnel





\square	Electronically file photo files into the on-site database
\square	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
\square	Logbook
\square	On-site computer database
	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Date: <u>04/03/12</u>		
Job Number:		
Title:		
	Job Number:	

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x		×	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	Na.		x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	,
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	*
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (Ь)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	9
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	,
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			v.
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x .	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х	8		26 2
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.		XI	x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone active once excavations began.

EZ was divided into two sections again with continued foot and equipment traffic in areas with exposed native material. These circumstances are difficult to avoid due to the layout, space constraints, and nature of work in this area in the north arm and around the west side of the switchgear building. Newman was asked by R&R to place fencing around the excavation for the vault near the corner of the Artistic Printing building. They had started digging before the fence was up. They were encouraged to continue maintaining EZ operations around active excavations.

CVE fabricators poured over 100 yards of FTB over the conduit placed in the north arm. They did some of this work in close proximity to exposed native material but covered much of it with the pour.

CVE line crew continued working on buss work and attaching componentry to structure steel.

Weather was partly cloudy and dry with moderate winds and high temperature in the low 60s.





3RD WEST SUBSTATION REMEDIATION PROJECT **HEALTH SAFETY MANAGER (HSM)**

	DAILY CHECKLIST
DATE:_	04/04/11
~	
Gener	
	ork area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
NA	activities for the day Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
	to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Co	implete all CSHASP Forms (for applicable activities planned for that day)
N A	
N.A	A Site-Specific Training Record Form C
N.A	Hot Work Permit Form D
N/	Trench/Evacuation Permit Form E
N.A	A Combined Space Entry Permit From F
\square	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	☑ Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
\square	Review sign-in/sign-out log throughout and at the end of the workday.
₫	Secure the site at the end of the workday
<u>Samp</u>	ling
NA So	il Confirmation sampling for any newly excavated areas
abla	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





Ø		Electronically file photo files into the on-site database
V		Complete Field Documentation
		Field Sample Data Sheets (FSDS)
		Logbook
	\square	On-site computer database
\checkmark		Label each sample media with a unique number
\checkmark		Seal sample(s) in zip lock plastic bags
☑		Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑		Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
7		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: 04/04/12
Location: 3rd West, 1st South, SLC	Job Number:
Survey Conducted By: Justin Kargis	Title:

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			х	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.	=		х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			х	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			х	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
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Standard	Title				Date
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1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			y .
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х	×		
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
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1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	х			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	2		x	

Exclusion zone not active today.

Newman continued backfilling and compaction in the north arm over the conduit lines. They prepared an area to relocate the decontamination unit east of the existing 46 kV structure from the old yard. Some exclusion zone entry to move equipment took place.

CVE line crew continued working on buss work and attaching equipment to structure steel.

CVE fabricators not on site today.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	DAILT CHECKLIST
DATE:	04/05/11
General	
	area Health and Safety Inspection
NA NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1111	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with
	contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Com	blete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
	Exclusion zone operations are practiced as instructed.
ب	Decontamination unit is working properly.
	✓ Workers are using decontamination unit as instructed.
	✓ Workers use personal protective equipment properly.
	workers use personal protective equipment property.
☑	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	Review sign-in/sign-out log throughout and at the end of the workday.
Ø	Secure the site at the end of the workday
<u>Samplin</u>	g
NIA (1.14	
NA Soil(☑	Confirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
NA	removal Digitally photograph each sample location and at any place field sampling personnel determined necessary





		Electronically file photo files into the on-site database
$\overline{\mathbf{A}}$		Complete Field Documentation
	$\overline{\mathbf{A}}$	Field Sample Data Sheets (FSDS)
	$\overline{\mathbf{A}}$	Logbook
	$\overline{\mathbf{A}}$	On-site computer database
\checkmark		Label each sample media with a unique number
\checkmark		Seal sample(s) in zip lock plastic bags
7	i	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
☑	•	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
\square		Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
$\overline{\mathbf{A}}$		Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: <u>04/05/12</u>				
Location: 3rd West, 1st South, SLC	Job Number:				
Survey Conducted By: <u>Justin Kargis</u>	Title:				

Standard	Title	In Compliance	Out of Compliance	D N/A	Corrective Action Taken and
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	~
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (Ь)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	,
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	,		x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			,
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	*
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	×		x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	*		x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Exclusion zone not active today.

Newman relocated the decontamination unit to the central part of the yard. One of the conexes was dropped while attempting to lift it with an excavator. Some exclusion zone entry to move equipment and perform the task took place. Exclusion zone procedures became a little bit relaxes over the last couple of days, while Newman has observed most protocols. They sprayed the pile of native soil with water in the afternoon.

CVE line crew continued working on buss work and air brake switches. They also set up the decontamination unit electricity.

CVE fabricators not on site today.





3rd West Substation Remediation Project HEALTH SAFETY MANAGER (HSM)

DAILY CHECKLIST

	<u>DAILY CHECKLIST</u>
DATE:_	04/06/11
Gen	eral
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable)
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA (Complete all CSHASP Forms (for applicable activities planned for that day)
	NA Illness/Injury Report Form A
1	NA Site-Specific Training Record Form C
ľ	NA Hot Work Permit Form D
ľ	NA Trench/Evacuation Permit Form E
ľ	NA Combined Space Entry Permit From F
. 6	Exclusion zone operations are practiced as instructed.
	☐ Decontamination unit is working properly.
	☑ Workers are using decontamination unit as instructed.
	☑ Workers use personal protective equipment properly.
\square	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
lacksquare	Review sign-in/sign-out log throughout and at the end of the workday.
☑	Secure the site at the end of the workday
Sam	pling
NA S	Soil Confirmation sampling for any newly excavated areas
	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





.	Electronically file photo files into the on-site database
$\overline{\mathcal{Q}}$	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
$\overline{\mathbf{A}}$	On-site computer database
$\overline{\mathbf{V}}$	Label each sample media with a unique number
$\overline{\mathbf{V}}$	Seal sample(s) in zip lock plastic bags
☑	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
Ø .	Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
\square	Electronically file sample reports into on-site database



Project: 3rd West Sub Station	Date: <u>04/06/12</u>			
Location: 3rd West, 1st South, SLC	Job Number:			
Survey Conducted By: <u>Justin Kargis</u>	Title:			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х	,
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	8
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х			

		In Compliance	Out of Compliance	I N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	v
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	*
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	¥
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	х			
1926.102 (a) (1)	Eye and face protection shall be provided.	X			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x	^		*
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	

Standard	Title	In Compliance	Out of Compliance	N/A ·	Corrective Action Taken and Date
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.	E		х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	х			, ,
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	-		х	

Exclusion zone active once excavations began.

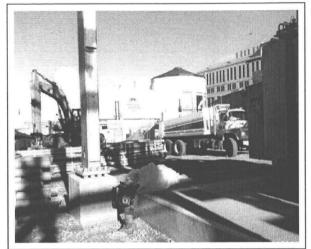
Newman began demolition of concrete vaults in the west section of the yard. They worked on this for a few hours in the morning while continuing to backfill and compact in the north arm. They re-entered the EZ later in the day to wash off one of the excavators for removal from the site on Monday.

CVE line crew left before 10 am.

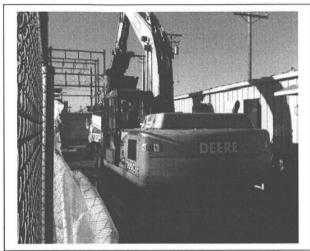
No CVE fabricators today.

Mike Shepherd on site to check in on progress and discuss time line.

Weather was cold, cloudy and slightly breezy. Light a.m snow showers with temperatures in the 40's.



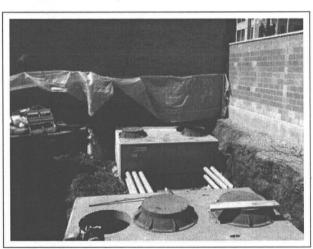
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 04/02/12	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



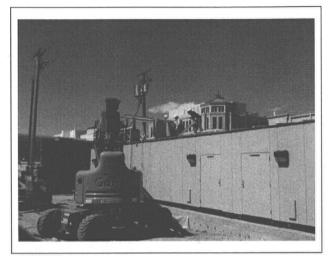
РНОТО 2

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY:	DATE 04/03/12	FILE:

SITE PHOTOGRAPHS





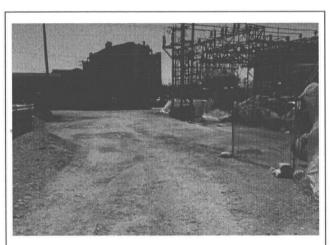
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 04/04/12	FILE:	

SITE PHOTOGRAPHS





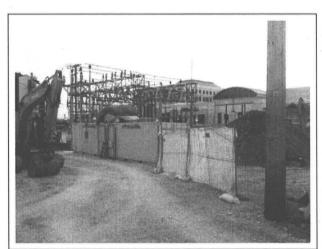
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

5		
DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 04/05/12	FILE:

SITE PHOTOGRAPHS

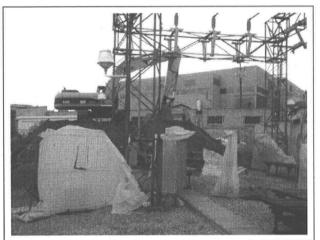




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 04/06/12	FILE:	

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub	- Rebuild	DATE :	Monday,	Ap ril 2, 20)12		
PO & Work Order NO. :	3000078050 / 1	0035803	MAIN CONTRA	CTOR : Ca	Cache Valley Electri			
Crew Start Time:	6:50	Crew Stop Time:	16:50	łrs mns:	10:00			
FCR Start Time:	6:45	FCR Stop Time:	17:05	Tot F	trs mns:	10:20		
Use military time format 00:00		•						
•								
WEATHER CONDITIONS:		Sunny - 30 degr	ees in AM, 55 degr	ees in PM				
DESCRIPTION: (work performed R&R set up four monitors. CVE Fab								
for the capacitor banks. CVE Line C the cables had not been spliced impralso worked on jumpers and 4" bus. vaults 2 and 3 to vaults 4 and 5. The preparation for placing of FTB on Tuthey were not, but would need to insp. Crew = 4, Newman = 6, R&R = 1,	operly in the vaults. F Newman excavated for ey placed conduits into esday at 1:00 PM. Wo pect the conduit duct be	RMP will check the chan or the duct banks betwe o vaults 1, 2, and 3 and ilding came by in the AN	ges and test energiz en vaults 1, 2, and 3 started the runs head I to see if they were	e the circuits or , as well as the ding south to va needed and it v	n Tuesday. duct banks aults 4 and was determ	They s from 5 in ined that		
HE WORKING IN ENERGIZED OF	IDCTATION			·	· <u>-</u>			
IF WORKING IN ENERGIZED SI Dispatcher login, name and time:	Jim Bownan 0645							
Dispatcher logout, name and time:	Gus Montanez 170	5	<u>-</u>					
DISCREPANCIES:	10.00 11.01.02		IMMEDIATE COR	RECTIVE AC	TION TAI	KEN:		
3/23 - Still waiting for the second CT term	inal block from Hyundai		Confirmed with Ken Fo	oster on 3/22 that	t RMP has n	ot received		
11/30 - Identified an additional retaining v Demo Plan.	vall that is below grade a	and does not show on the	Will excavate to deten	nine dimensions.	<u></u>			
12/15 - Excavated to locate the 46 kV cal didn't find them. Will try again. Actual de	epth will be much deeper		Sent e-mail to Roger F					
EQUIPMENT (working, delivered CVE fab crew: Portable toilet (3), forklift, JLG (2), tool trailer. Newman: trachoe (3)	ed, idle): 1 dumpster, office traile			crew truck. CVE	Line Crew:	Pickup (2),		
OSILA Discondibility Of the history				manda de la	····	Fi 0.		
OSHA Recordable Safety Incide	ents:		Re	ported by:	<u>_</u>	Tim e :		
								
	· . .				<u></u>			

Rocky Mountain Power

Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West Sub - R	Rebuild	DATE : Tue	esday, April 3, 2	012
PO & Work Order NO. :	3000078050 / 1003	35803	MAIN CONTRACTOR	: Cache Valle	y Electric
Crew Start Time:	6:45	Crew Stop Time:	17:00	1 0 :15	
FCR Start Time:	6:37	FCR Stop Time:	17:15	Tot Hrs mns:	10:38
Use military time format 00:00					
•		•			
WEATHER CONDITIONS:		Sunny - 40 degre	ees in AM, 65 degrees in	PM	
DESCRIPTION: (work performed R&R set up four monitors. CVE Fab					
kV conduits around duct banks at val kV ABS and CCVTs. All wire jumpel excavating for the duct banks running installed 3" conduit for fiber on north access for the contractor installing th = 1.	rs from the upper N-S but g south into vaults 4 and end of the control buildin	s to the lower E-W bu 5, and installing cond g. N evman removed	is are completed, except on uits for same. Newman exc dirt from south end of the c	e. Newman cont avated for vault # ontrol building to	inued 6 and provide
	•				
IF WORKING IN ENERGIZED S			·		
Dispatcher login, name and time:	Manny LuHaun 0637				
Dispatcher logout, name and time: DISCREPANCIES:	Kim Batt 1715		MMEDIATE CORRECTI	VE ACTION TA	VEN.
DISCREPANCIES.		<u> </u>	MMEDIATE CORRECTI	VE ACTION TA	NEN:
3/23 - Still waiting for the second CT term	ninal block from Hyundai		Confinned with Ken Foster on 3 his vet.	1/22 that RMP has r	not received
11/30 - Identified an additional retaining v	wall that is below grade and	does not show on the	Mill excavate to determine dim-	ensions.	
Demo Plan. 12/15 - Excavated to locate the 46 kV ca	bles exiting the west side of	the yard. Dug 8' and	Sent e-mail to Roger F		
didn't find them. Will try again. Actual de	epth will be much deeper tha				
DELAYS OR LOST TIME ENCO	UNTERED:				
	-				
·					
EQUIPMENT (working, delivered	ed, idle):				
CVE fab crew: Portable toilet (3), forklift, JLG (2), tool trailer. Newman: trachoe (3)	1 dumpster, office trailer, co			c. CVE Line Crew:	Pickup (2),
(-), 121 121 1101 1101 1101 1100 (-,,,,	sasi, compactor,			1
	•		-		
OSHA Recordable Safety Incide	ents:		Reported	l by:	 Time:

Rocky Mountain Power

Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West S	ub - Rebuild	DATE : Wednesday, April 4, 201						
PO & Work Order NO. :	3000078050	/ 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric				
Crew Start Time:	6:50	Crew Stop Time:	17:00	Tot Hrs mns:	10:10				
FCR Start Time:	6:42	FCR Stop Time:	17:07	Tot Hrs mns:	10:25				
		FOR Stop Time.	17.07	_ 10(1115 111115	10.25				
Use military time format 00:00									
WEATHER CONDITIONS:	 	Overcast/Sunny - 44 (degrees in AM, 66 degree	es in PM					
DESCRIPTION: (work perfo									
aluminum welding on the project vaults 2/3 and 4/5, and leveled a arrived on site and removed the 2, R&R = 1, Wilding = 1.	. They assembled the n area north of the eas	two west circuit breakers. Not 46 kV getaway for relocati	ewman partially backfilled the on of the decontamination of	ne 12 kV ductbanl onexes. Capital	s between Electric				
IF WORKING IN ENERGIZEI	D SUBSTATION:		•						
Dispatcher login, name and time		0642	•						
Dispatcher logout, name and tim	e: Al Swinski 1707								
DISCREPANCIES:			MMEDIATE CORRECTI	VE ACTION TA	KEN:				
3/23 - Still waiting for the second CT	terminal block from Hyur		Confirmed with Ken Foster on 3 his yet.	3/22 that RMP has r	not received				
11/30 - Identified an additional retain	ning wall that is below gra	de and does not show on the	Will excavate to determine dim	ensions.					
Demo Plan. 12/15 - Excavated to locate the 46 k	V cables exiting the west	side of the yard Dug 8' and	Sent e-mail to Roger F						
didn't find them. Will try again. Actu	•		Some of mail to reagon 1.						
DELAYS OR LOST TIME EN									
EQUIPMENT (working, deliv	vered, idle):								
CVE fab crew: Portable toilet (3), fo JLG (2), tool trailer. Newman: trach	rklift, 1 dumpster, office t			k. CVE Line Crew:	Pickup (2),				
OSHA Recordable Safety In	icidents:		Reported	l by:	Time:				
OSHA Recordable Safety In	ncidents:		Reported	l by:	Time:				
OSHA Recordable Safety In	ncidents:		Reported	l by:	Time:				

Rocky Mountain Power

Russ Johnson

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Third West Sub - Rebuild Thursday, April 5, 2012 PROJECT NAME: DATE: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO.: Crew Start Time: Crew Stop Time: Tot Hrs mns: FCR Start Time: 6:40 FCR Stop Time: 17:09 Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Partly Cloudy/Sunny - 50 degrees in AM, DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE Fab Crew is off-site today. CVE Line Crew installed operating pipe for the 138 kv ABS, relocated the sen/ice for the decontamination conexes. Newman moved the decontamination conexes to the east side of the 46 kV yard, set, backfilled, and compacted #6 yault to the west of #2 Xfmr and continued backfilling the 12 kV ductbanks between yaults 2/3 and 4/5. Capital Electric delivered the new 48 V Comm battery and started assembling. They removed the rack and batteries yesterday. RMP relay personnel are on site today. CVE Line Crew = 4, CVE Fab Crew = 0, Newman = 5, Capital Electric = 2, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Barry Nielson 0640 Dispatcher login, name and time: Dispatcher logout, name and time: Gus Montanez 1709 IMMEDIATE CORRECTIVE ACTION TAKEN: DISCREPANCIES: 3/23 - Still waiting for the second CT terminal block from Hyundai Confirmed with Ken Foster on 3/22 that RMP has not received this vet. 11/30 - Identified an additional retaining wall that is below grade and does not show on the Will excavate to detennine dimensions. 12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and Sent e-mail to Roger F. didn't find them. Will try again. Actual depth will be much deeper than design of new **DELAYS OR LOST TIME ENCOUNTERED:** EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (3), loader, bobcat, mini-ex, water truck, compactor, backhoe.

OSHA Recordable Safety Incidents: Reported by: Time:

Rocky Mountain Power

Field Construction Representative

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Third West Sub - Rebuild DATE: Friday, April 6, 2012 PROJECT NAME: 3000078050 / 10035803 PO & Work Order NO.: MAIN CONTRACTOR: Cache Valley Electric Crew Stop Time: Tot Hrs mns: ___ Crew Start Time: 16:20 17:50 FCR Start Time: FCR Stop Time: Tot Hrs mns: 11:10 Use military time format 00:00 **WEATHER CONDITIONS:** Rain and Snow in AM - 34 degrees in AM, 50 degrees in PM DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE Fab Crew is off-site today. CVE Line Crew called it around 0800 due to stormy conditions. Newman removed the last of the concrete for the old 46 kV deadend foundations and continued backfilling the 12 kV ductbanks between vaults 1, 2, and 3. Newman delivered ABC material for backfill. Capital Electric continued working on the 48 V Comm batteries and rack. RMP relay personnel are on site today. CVE Line Crew = 4, CVE Fab Crew = 0, Newman = 5, Capital Electric = 2, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Kim Batt 0642 Dispatcher logout, name and time: Kim Batt 1750 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: 3/23 - Still waiting for the second CT terminal block from Hyundai Confirmed with Ken Foster on 3/22 that RMP has not received 11/30 - Identified an additional retaining wall that is below grade and does not show on the Will excavate to determine dimensions. 12/15 - Excavated to locate the 46 kV cables exiting the west side of the yard. Dug 8' and Sent e-mail to Roger F. didn't find them. Will try again. Actual deoth will be much deeper than design of new **DELAYS OR LOST TIME ENCOUNTERED:** EQUIPMENT (working, delivered, idle): CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2),

JLG (2), tool trailer. Newman: trachoe (3), loader, bobcat, mini-ex, water truck, compactor, backhoe.

Reported by: Time: OSHA Recordable Safety Incidents:

Rocky Mountain Power

Field Construction Representative



April 4, 2012

Laboratory Code:

RES NA

Subcontract Number: Laboratory Report:

RES 232990-1

Project # / P.O. #
Project Description:

None Given 3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 232990-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101898-0; TDH: #30-0015

TABLE L TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 232990-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

April 3, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

April 4, 2012

Client	Lab		Area	Air	Number of	Analytical	Asbestos	Filter
ID Number	ID Number		Analyzed	Volume Sampled	Asbestos Structures Detected	Sensitivity	Concentration	Loading
			(mm²)	(L)	•	(s/cc)	(s/cc)	(s/mm²)
3W-040212 W	EM	875401	0.0900	936	ND	0.0046	BAS	BAS
3W-040212 N	EM	875 402	0.0900	936	ND	0.0046	BAS	BAS
3W-040212 E	EM	875403	0.0900	936	ND	0.0046	BAS	BAS
3W-040212 S	EM	875404	0.0900	934	ND	0.0046	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity
Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mni

DATA QA

Due Date: 4-4-12.

Due Time: 9300

REILAB RESERVOITS ENVIRONMENTAI, INC. 5801 Logan St. Danvar, CO 80216 - Phr 303 984-1988 - Fax 303-477-4276 - Toll Free 386 RESI-ENV

tt. Dsnvsr, CO 80216 • Ph: 303 984-1986 • Fax 303-477-4276 • Toll Free :865 RESI-ENV Page 1 of

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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A =	Amosite	F =	Fiber
An =	Anthophyllite	B =	Bundle
C =	Chrysotile	C =	Cluster
Cr =	Crocidolite	M =	Matrix
т =	Tramolita		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

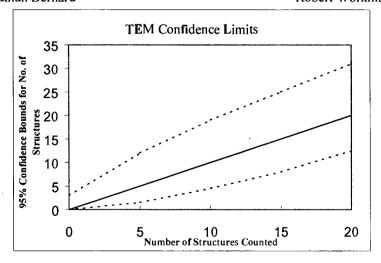
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

7	
Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20iO 10KX
Grid opening area (mrn2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2) Secondary Filter Area	385
(mm2)	
QA Type	l

Client :	ROTE
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	936
Date received by lab	413/12
Lab Job Number:	232990
Lab Sample Number:	875401

Lab Sample Number:	875401
F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used Total Resuspension Volume (ml)	
Volume Applied to secondary filter (mt)	

Analyzed by	JB
Analysis date	414/12
Mathod (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond .	One Operang	Туре	Primary	Total	Length	Width	racina noation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	62-6	DV												
	FZ-6	MD		·	Pre	PA	70	o heah	4	5%	debus			
	E2-6	MD		· .	Piny	B	70	Jointa	+	5%	debne			
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Rsservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	OKX 10KX
Grid opening area (mm2)	0.01
Scale: 1L = .	0.28 um
Scale: 1D =	0.056 um
Primary tiller area (mm2)	885
Secondary Filter Area (mm2)	
QA Type	

Client:	Rak
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	936
Oate received by lab	4/3/12
Lab Job Number:	232990
Lab Sample Number:	875402

Analyzed by	213
Analysis date	414/12
Method (D=Direct, I=Indirect, iA=Indirect, ashed)	Ā
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fracison of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filler (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Gild	Ond Opening	Type	Primary	Total	Length	Width	·	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
H	K5-4	ND												
	H5-1	ND			Pmp	A	60/	april	3-5	60 6	chrs			
	G5-1	W			Pons	<u>B</u>	80%	utant	3-5	% de	bris			ļ
	F5-1	2												
	C5-6	ND						$\mathcal{A}\mathcal{B}$	9 4/	4/12				
B	K4-1	ND							//	7				
	1+4-1	ND						/		,				
	K4-3	MD												
	H4-3	ND												

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magntfication	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Rape
A
936
413/12
232990
875403

Lab Sample Number:	0 1340)
F-Factor Calculation (indirect Preps	Only):
Fraction of primary filter used	1
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (mi)	

Analyzed by	JB
Analysis date	4/4/12
Method (D=Direct, I=Indirect, 1A=tndirect, ashed)	D.D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	uctures	Dimer	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
J.,	ond opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K4-1	ND		,										
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B	F2-4	~D				-	/ //	17		·				
	F2-1	ND												
	E3-1	M												
	03-4	ND			<u>.</u>									

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Reservoirs Environmental, inc. TEM Astrestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N)S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	93 4
Dale received by lab	4/3/12
Lab Job Number:	232990
Lab Sample Number:	875404

Counting rules	AHERA
(ISO, AHERA, ASTM)	AHERN
Grid storage location	Month Analyze
Scope Alignment	Date Analyze

Analyzed by

Analysis date

F-Factor Calculation (Iridirect Preps Only):							
Fraction of primary filtsr used							
Total Resuspension Volume (ml)							
Volume Applied to secondary filter (ml)							

ſ	Grid	Grid Opening	Structure	No. of Stru	uclures	Dimensions		Identification	Mineral Class				1 = ye	= no	
	J.,	3.1d 0.pog	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
	A	HZ-10	ND												
		612-6	CN		·	Pap	A	80%	in Grat	S	o del	wis			
	·	F2-6	MO			Pap	B	2/20	nhut		ho de	bu's			
		F36	ND												
		E3-6	ND												
	B	13-3	ND												
		K3-3	ND									•			
		H3-3	M												
		G13-3	NO												

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel.

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO$ counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, $s/mm^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (nim}^2)}$

GO = TEM grid opening



April 5, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 233046-1 None **G**iven

Project Description:

3rd West Sub - RMP

R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 233046-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Resenvoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 233046-1

Client:

R & R Environmental

Client Project Number / P.O.: Client Project Description: Date Samples Received:

None Given

3rd West Sub - RMP

Analysis Type:

April 4, 2012

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

April 4, 2012

Client ID Number	Lab ID Nu	mber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-040312 W	EM	875505	0.0900	947	ND	0.0045	BAS	BAS
3W-040312 N	EM	87550 6	0.0900	947	ND	0.0045	BAS	BAS
3W-040312 E	EM	875507	0.0900	947	ND	0.0045	BAS	BAS
3W-040312 S	EM	875508	0.0900	947	ND	0.0045	- BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

DATA QA

Due Date:_	4-2.13
Due Time:	2340€

REILAE Reservoirs Environmental, Inc. 6801 Lagan St. DSnvar, CO 80216 - Ptr. 303 964-1686 - Pax 303-477-4275 - Toll Frea : S66 RESI-ENV

Page	OT	

	INVOICE TO: (IF	DIF	FERI	ENT)									С	ONTA	T IN	4FOR	MATION	:					
Company: RER Environmental	Company					Con		Down	1/2	oské	ile	1		Contact:									
Address: 47 W 9000 5 #2	Address:						Phone:									Phone:							
Sundy U. 84070						Fox	Col/pager: 801 SUL-1035										Fax						
	<u> </u>			<u>. </u>		Col	pager.	80	51	<u>11-11</u>	035					Cell/pr	ager						
Project Number and/or P.O. #: Project Oesor/ption/Location: 302-West-Sub - (LNI)			Finel Data Deliverable Email Addross: dave & Menvino.com																				
		_		7.							=			4			ÁTOW C			P. NOTE			
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		H	<u>ಿ ೮</u>	<u>::::</u>	· · ·	REQUI	SIE	UAN	IALY	515	1 1	· · · ·	1	# v % 10	_		ATRIX C		- LA	B NOTE	5:		
(Rush PCM = 2ht, TEM = Sitr.)	/SIANDAND		[ÌΙ		ı	11	1	11	11	1	1	-	Air =			Bulk ≈ 8 Paint = P					
CHEMISTRY LABORATORY HOORS: Weektlays: 8am - Spm	dyfaeun derfug hije get	1						11			11	ļ			Soil			Vipe ≈ W					
Metal(s) / Dust RUSH 24 hr 3-5 Day		1					1	11		11	11	1	'		_	= SW		F = Food					
RCRA 8 / Metals & Welding RUSH 5 day 10 day	**Prior notification is raquirad for RUSH	Ę	Se ser	1		₅			ş			۶	<u>.</u>	Drinki			OW Wast	Waste Water = ww					
i dille Scall / Tour	turnarounds.**	[อี	7. 88	.		Scan			age of			1	TES) = Other						
Organics 24 hr 3 day S Day		Point Count	SS			Metals		11	3]] 5	5 8	1	2	"AS	TM E	1792 er	pproved wip	e media only*	<u>'</u>				
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9ani - 6pm		岩	2. 5 8. 5						5	يُّ إِي	igg.	50		1		11		1	<u> </u>				
E.coli 0157:H7, Conforms, S.aureus 24 hr 2 Day Salmonella, Listeria, E.eoli, APC, Y & M 48 Hr 3-S Day	3-5 Day	활	₹Ž	景	ا پر ا	yte(s) Welding Fume,			÷	fica	1	§ §	5 5)					}				
	48 Hr3 Day5 Day	§	# Q	9,	g l	(S		*	발	Quan			S	1	ĺ			İ	-				
"Tumeround three establish a laboratory pribrity, subject to laboratory votume and al		병	\$ F	9	Ses	Wet Wet	E:	15	3	بالا	. ~	2 3	1	۱.					<u> </u>				
apply for afterhours, washands and tiolidays.**		Ē	ફુ≅	\ \	76	- Analyte(s) TCLP, Weld	¥,	E.coil 0157:H7:	불	4 3	.1 ' 1.	* 4	Ē	ξ	١.	, 2			1	7 1 1	33		
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Client sample ID nutnber (Sample ID's must be unique)		ž	Semi	PCM	DUST	2 s.	8		NCRC	BIOL	OGY		S.	Sample Volume (L) / Area	. \ <u>\$</u>	¥ .	mn/dd/yy	htv/mm a/p					
1 3W-04031ZW			X					Ш						947	A		40362		87	554	' 5		
2 3W 040312 N			1											947	7						<u>ک</u>		
3 3W-040312 E								П			\prod			947	П	T^{T}				ø	7		
\$ 3W-040312 S			Ţ				T							947	J		V		1 4	<i>7</i> 40	ß		
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6			1 1					11															
7		\Box					\neg	\prod	П	П	Π	T	Ī		T	\prod			7				
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9					\Box		\top	11	П			1											
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Number of samples received: (Addition	nat samples stiall be listed on	attac	hed ic	na te	·····)		ل		احنتاب		.ll			<u> </u>	<u> </u>	JL	<u> </u>	<u></u>			ان_نست		
NOTE: REI will analyza incoming samples based upon leighmation received and will not be re analyse to os indicated on this Chaig of Custody shall constitute an analytical services agreeme	sponsible for en ors or omissions in ca	lcufat	ions ras	ulting f	rom th	na inacotr	acy of	odgina!	data. i	By sign	ning di	sni/co	ompany re	presentali	ve ag	ees tha	t submission	of the following	samples for n	quested			
/ L. V.	61	-, -3#0				,	1		_					T									
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7-2011_version 1 fullef # 1754 co 961 4729

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

1 = other structure associated with a matrix

NAM = Non Asbestos Mineral

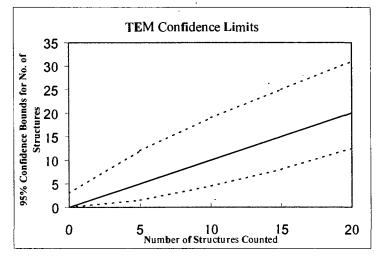
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence tounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
	~
Instrument	JEOL 100 CX ft S
Voltage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyce	

Client :	RAR
Sample Type (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	947
Oate received by lab	4/4/12
Lab Job Number:	233046
Lab Sample Number:	875505
Lab dample Hamber.	101000

	1
Analyzed by	AH
Analysis date	4/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

F-Factor Calculation (Indirect Preps Only):				
Fraction of primary filter used				
Total Resuspension Volume (ml)				
Volume Applied to secondary fitter (ml)				

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	Dimensions Identification		Mineral Class				1 = ye	s, blank	= no
Gild	Orid Opening	Туре	Primary	Total	Length	Width	identinoation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	65-4	an						·						
	fsy	\overline{M}		,										
	E5-4	MD		PL	-A: 9	olin	tact	5% de	bris		,			
	C5-4	(N)		Piso.	R - 8	OZM	tact	5% de	605					
	854	ND											·	
B	K5-3	MD												
	H53	MD					(2)							
	65-3	MD			_									
	F5-3	M			,)							

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20) BX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary lilter area (mm2)	385
Secondary Filter Area (mm2)	-
QA Tyoe	

Cilent:	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	947
Oate received by lab	4/4/12
Lab Job Number:	233046
Lab Sample Numben	875506

Analyzed by	MH
Analysis date	4/4/12
Method (D=Olrect, I⇒Indirect, IA=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyze
Scope Alignment	Date Analyze

F-Factor Calculation (Indirect Preps Only):						
Fraetian of primary filter used						
Total Resuspension Volume (ml)						
Valums Applied to secondary filter (ml)	,					

Grid	Grid Opening	Strature	No. of Str	uctures	Oime	nsions Identification		tion Mineral Class				1 = yes, blank = no		
Ond	Ond Opening	Туре	Primary	Total	Lenoth	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H3-4	ND												
	63-4	M												
	F3-4	V2		P	2,A>90	ي در و	tact	5% de	bas					
	E3-4	DY)		Piec	3	PianA		·						
	F3-4	ND						<u> </u>						
B	E3-4	NO						<u></u>						
	C34	5					A					·		
	F3-4	[3]												
	63-4	M.					·							
	•													

Reservoirs Environmental, Inc. TEM Asbestos Strueture Count

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	(2019X 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RAR
A
947
4/4/12
233046
875507

Analyzed by	Alt
Analysis date	4/4/12
Method (D=Oiract, I=Indirect, 1A=Indirect, ashed)	D
Counting mles (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filler used	
Total Resuspension Volume (ml)	
Volume Applied to Secondary titter (ml)	

Grid	Grid Opening	Strnctura	No. of Str	uctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туро	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-1	M					<u>.</u>	·					}	
	H3-1	MD												
	63-1	an		Piech	; 60	of in	act	5% de	bes					
	F3-1	M)		Piec	B-90	% in	taet	54 de	60	·				
	E3-/	1											·	
B	H4-1	M												
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	F4-1	ND			X)			·	* ·- * * * ·- ·- ·				
	E4-(ND			7		·							
	·										,			

Reservoirs Environmental, 1nc. TEM Asbestos Structure Count

Laboratory name:	REI
Instmment	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	(2019X 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	RAR
Sampla Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	947
Oate received by lab	4/4/12
Lab Job Number:	233046
Lab Sample Number:	875508

Analyzed by	Alt
Analysis date	4/4/12
Method (D=Oirect, I=Indirect, IA=Indirecf, ashed)	D
Counting mles (ISO, AHERA, ASTM)	Ahera
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary filter used	
Total Resuspension Voluma (ml)	
Volume Applied to secondary filter (mf)	

Grid	Crid Opening	Stmcture	No. of Str	mctures	Oime	nsions	Identification	Mineral Class				1 = y	s, blank	= no
Gila	Grid Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
A	H5-4	NO				,								·
	65-4	ND												
	F5-4	$\Delta \dot{N}$		Pie	A:-9	ن را ن	ntact	5% de	605					
	ESY	$\sqrt{\mathcal{V}}$.		Pos	B~	Pier	4							
	454	20											·	
B	F3-6	2						·						
	E36	2												
	c3-6	2							,					
	B3-6	ND				Ø	·)						
					/									



April 6, 2012

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 233126-1 None Given

Project Description:

3rd West Sub - RIVIP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 233126-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 233126-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

April 5, 2012

Analysis Type:

TEM, AHERA

Turnaround:

Date Samples Analyzed:

24 Hour April 6, 2012

Client ID Number	•	Lab ID No	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
				(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-040512 W		ĘΜ	875649	0.0900	920	ND	0.0046	BAS	BAS
3W-040512 N		EM	875650	0.0900	920	ND	0.0046	BAS	BAS
3W-040512 E		` EM	875651	0.0900	920	. ND	0.0046	BAS	BAS
3W-040512 S		EM	87565 2	0.1000	5 3 8	ND	0.0072	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

Time

Time

Initials

Initials

Date

Due Date:	4-6-12
Due Time:	めよりし

Contact

Contact

Phone Email Fax

Ptione Email Fax

Data

Date

Time

Time

Initials

Reservoirs Environmental, Inc. 6801 Logan St. Denver, CO 80218 • Ptr. 303 964-1986 • Fax 303-477-4278 • Toll Free :866 RESI-ENV

of_

Pagar: 303-909-2098 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Company: R&R Empuneulal Dave Roskeller Contact: Address: 47 W 9000 S #2 Phone: Sandy W. 841043 fax: Cell/pagon 801 541-1035 Cel/pager: Project Number and/or P.O. #: dave errenvivo.com Project Description/Location: 3th Ulest Sub - RMP ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm REQUESTED ANALYSIS **VALID MATRIX CODES** LAB NOTES: ____ RUSH (Same Day) K PRIORITY (Next Day) STANDARD Air = A Bulk = B (Rush PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wipe = W Metal(s) / Dust RUSH 24 hr. 3-5 Day Swab = SW F = Food **Prior notification is RCRA 8 / Metals & Welding Drinking Water = DW | Waste Water = WW Point Count RUSH ___ 5 day ___10 day required for RUSH Fume Scan / TCLP O = Other ÷ furnarounds.** Organics 24 hr. ___ 3 day ___ 5 Day "ASTM E1792 approved wipe media only" Š. MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm , 7402, P. ISO-Indire E.coli 0157:H7, Coliforms, Saureus ___ 24 hr. ___2 Day SH AH SO ___3-5 Day Salmonella, Listeria, E.coli, APC, Y & M 48 Hr. Mold RUSH 24 Hr 48 Hr 3 Day **Turneround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional feet Sample Volume apply for afterhours, weekends and holidays,** Code · Short Special instructions: (L) / Area EM Number (Laborator Date Time DUST . Use Only) Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY gron/dd/yy hlvmm a/p 3W-040512W doduz 49 3W-040512 N 920 50 920 36-040512 F 51 3W-00512 S 52 8 9 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze incoming atmptes based upon information received and will not be responsible for enors or ombisions in calculations resulting from the inaccuracy of original data. By aligning client/company representative agreea that submission of the following samples for requested analysis as indicated on thic Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surctiants. Fed Ex Relinquished By: Dats/Time: Sample Condition: On Ice Sealed Inlact Laboratory Use Only Temp. (P') Yes / No Yes / No ∕*T⊕s / No Received By: Date/Time: Carrier: Results:

> 7.982 42927567 7-2011_version 1

Phone Email Fax

Phone Email Fax

Contact

Contact

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

٨	_	Amosite		F =	Eibor
А	_	Amosite		Г —	ribei
An	=	Anthophyllite		B =	Bundle
C	=	Chrysotile		C =	Cluster
Cr	=	Crocidolite	•	M =	Matrix
T	=	Tremolite			

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

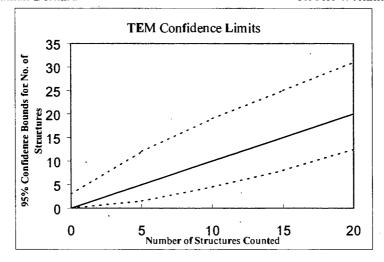
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, inc. TEM Astrestos Structure Count

Laboratory name:	REI
Laboratory flame.	INE!
Instrument	JEOL 100 CX (N) S
Voltaae (KV)	100 KV
Magnification	20 101€X
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	365
Secondary Filter Area (mm2)	
QA Type	

Client :	Rock
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (crn2)	920
Date received by lab	415/12
Lab Job Number:	233126
Lab Sample Number:	875649

F-Factor Calculation (Indirect Preps Only):						
Fraction of primary filter usad						
Total Resuspension Volume (ml)						
Volume Applied to secondary fiiter (ml)						

Analyzed by	JB
Analysis date	4/6/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	aher*
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class	· ·			1 = y	es, blank	= no
Gild		Туре	Primary	Total	Length	Width	identification	Amphibole	l c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	4-1	ND												
	K4-1	ND												
<u> </u>	14-1	MD			P	eps +	1-3	260%	inta	<u>^</u>	5-7% de L	ris_		·
	63-3	NO						h						<u> </u>
	F3-3	ND						1B.	1/6/13					ļ
B	E2-6	ND		l I	,	· · · · · · · · · · · · · · · · · · ·								
	C2-6	NO				· ·								
	E3-3	ND									1			
	C3-3	ND												
		•				-								İ

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltaae (KV)	100 KV
Magnification	20K ₹ 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area	
QA Type	

Client :	Rok
Sample Type (A=Alr, D=Dust):	A
Air yolume (L) or dust area (cm2)	920
Date received by lab	415/12
Lab Job Number:	233126
Lab Sample Number:	875649

F-Factor Calculation (Indirect Preps C	Only):	·
Fraction of primary filter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary fiiter (ml)	-	

Analyzed by	JB
Analysis date	4/6/12
Method (D=D)rect, I=Indirect, IA=indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	aher*
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond	Ond Opening	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	4-1	ND												
	K4-1	ND				···- <u>-</u>								
	44-1	MD			P	eps &	+3	260%	inte	<u>^t</u>	5-7% det	cis		
	63-3	NO					4	- th						
	F3-3	ND						4B 7	16/13	.				
B	E2-6	ND			,			/ "		 -				
	C2-6	NO				4	•							
	E3-3	ND												
	C3-3	ND			·									

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Maanification	€0KX LOKX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Rock
A
920
4/5/12
233126
875650

-Factor Calculation (Indirect Prepa Only):					
Fraction of primary filter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Analyzed by	JB
Analysis date	4/6/12
Method (D=Direct, I=Indirect, IA=Indirect, astied)	D
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

Grid	Grid Opening	Structure			Dime	nsions	Identification	Mineral Class				1 = yes, blank = no		
Gira	Grid Opening	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	63-3	ND												Ĺ
	=3-3	ND			F	rep	A 60	Te inten	f	5-10	The debris			
	E3-3	ND			P.	0 1	3 70	% inten	+ =	5-10	Lo debois			
	c3-3	ND.						,	ļ. <u></u>					
	33-1	ND						13	4/6	1/12				
B	F3-3	NO												
	E3-3	NO								<u> </u>				
	C3-3	ND-								<u></u>				
	B3-3	ND						·						

Page	1	of	
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Reservoirs Environmental, 1nc. TEM Asbestos Strueture Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Maanification	€ 6KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0,28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
OA Type	,

Client :	Roll
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	920
Date received by lab	4/5/12
Lab Job Number:	233126
Lab Sample Number:	875651

-F	actor Calculation (Indirect Preps	s Only):	
rac	tion of primary filler used		
ota	ll Resuspension Volume (ml)		
olu	me Applied to secondary filtar (mi)		
+			

Anatyzed by	JB
Analysis date	4/6/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	Α
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class	· · · · · · · · · · · · · · · · · · ·			1 = yes, blank = no			
0.10	One opening	Туре	Primary	Total	Length	Width	i dominio di di	Amphibole	С	NAN	Sketch/Comments	Sketch	Photo	EDS	
A	63-4	ND													
	F3-4	ND				Pre	p A	0% in h	if	5%	debris				
	E3-4	ND				Pu	BB	10% inte	Lt_	50/0	debois				
	C3-4	ND												ļ	
	B3-4	ND						1B 4	16/12						
B	H2-3	NO			,			// "							
	G2-3	ND		.					<u> </u>						
	F2-3	NO.													
	E2-3	ND							,						

Reservoirs	Env	/tronn	nenta	ai, Inc.
TEM Asbes	tos	Struc	ture	Count

Laboratory name:	REI .
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Maanification	20KX 10KX
Grkt opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	·
QA Tyoe	

Client:	Rock
Sample Tyoe (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	558
Date received by lab	4/5/12
Lab Job Number:	233126
tab Sample Number:	875652
Lab Job Number:	23312

F-Factor Calculation (Indirect Preps Onl	y):
Firaction of primary filter used	•
Total Resuspension Voluma (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	4/6/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	Q,
Counting rules (ISO, AHERA, ASTM)	AHERA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Strncture Type	No. of Structures		Dimensions		Identification	Mineral Class			 	1 = yes, blank = no		
			Primary	Total	Length	Width	(GC/IIII)CE(IOI)	Amphibole		NAM	Sketch/Comments	Sketch	Photo	EDS
A	K3-6	ND						· 						
	H3-6	NP				Pa	PA	70% in	funt	5-	7% Jehn	•		
	G36	ND				Pm	B	60 % int	1 1	5-	7 % debr	is .		
,	F3-6	ND				, '								
	E3-6	ND						13 4/4	1/12					
B	L3-3	ND			,			/ /						
	63-3	ND												
	H3-3	ND												
	G3-3	MD												
	E3-10	NO							<u></u>					

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are idendfied and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Eauations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area (mm}^2)}{\text{A verage GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



April 9, 2012

Laboratory Code: Subcontract Number:

RES NA

Laboratory Report: Project # / P.O. #

RES 233221-1 None **G**iven

Project Description:

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 233221-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE |. TEM A|R FILTER SAMPLE DATA AND ANALYT|CAL RESULTS

RES Job Number:

RES 233221-1

Ciient:

R & R Environmental

Client Project Number / P.O.:

None Given

Ciient Project Description:

3rd West Sub - RMP

Date Samples Received:

April 6, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

April 6, 2012

Ciient ID Number	Lab ID N	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures	Anaiyticai Sensitivity	Asbestos Concentration	Fiiter Loading
			(mm²)	(L)	Detected	(s/cc)	(s/cc)	(s/mm²)
3W-040512 W	EM	875906	0.0900	903	ND	0.0047	BAS	BAS
3W-040512 N	EM	875907	0.0900	903	1	0.0047	0.0047	11.1
3W-040512 E	EM	875908	0.0900	903	N D	0.0047	BAS	BAS
3W-040512 S	EM	875909	0.0900	903	ND	0.0047	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Effective Filter Area = 385 sq mm

agred by Grae veltramo Ome 2012 de 00 08 47.16 -08100

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 233221-1

Client:

R & R Environmental

Ciient Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

April 6, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Sampies Analyzed:

April 6, 2012

Client ID Number	Lab ID N	umber	Asbestos Mineral	Asi	bestos Str	ucture Typ	pes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures tor
			•	Fibers	Bundles	Clusters	Matrices			Concentration
3W-040512 W	EM	87590 6	ND	0	0	0	0	0	0	0
3W-040512 N	EM	875907	Chrysotile	0	0	0	1	0	0	1
3W-040512 E	EM	875908	ND	0	. 0	0	0	0	0	0
3W-040512 S	EM	875909	ND	0	0	0	0	0	0	0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to i ncorrect aspect ratio

ND = None Detected

RESELVAIRS ENVIRONMENTAIL, INC. 6601 Logan St Danver, CO 80216 · Ph: 303 964-1996 · Fax 303-477-4275 · Toll Free :866 RESLENV

Pagar : 303-669-2096

Page ___1__ot ___

	INVOICE TO:	(IF DI	FFER	RENT)	<u> </u>									ONTAC	I T		MATION	<u>l:</u>		
company: RER Euringermental	Company:							Dav	e	20sk	elle	¥				Conta				
Address: 47W 90005#2	Address:	Address:					one:									Phon	B:			
Sundy W. 84043							Fax:							Fax:						
								80								Cell/p	ager:			
Project Number and/or P.O. #:								ovlect st		-										
Project Description/Loadion: 312 West Sub-RMP							<u>Oa</u>	we	@	m	$\mathcal{N}_{\mathcal{N}}$	10 · 0	ma							
ASBESTOS LABORATORY HOURS: Weakdaya: 7am - 7pm			. :* :			REQU	EST	ED A	NA	LYS	IS	181 8		1. 1	VAL	JD N	ATRIX (CODES	LA	NOTES:
PLM / PCM (TEM RUSH (Same Day) X PRIORTY (Next	Day)STANDARD	$\neg \vdash$	T				Τ	\prod	\prod		H	TT			Air=	Α		Bulk = B	1	
(Rush PCM = 2hr, TEM = Shr.)			}			1									Oust =	· D		Paint = P	1	e
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spm					ł							[Soil =	S		Wipa = W	-	10n
Metal(s) / Dust RUSH 24 hr 3-5 Day			돧	-		11						11		Sv	vab =	SW		F = Food		L
RCRA 8 / Metals & Welding RUSH 5 day 10 day	**Prior notification is required for RUSH	듵	Quant	1		l s	1	H		Quantification			5	Drinkln	g Wa	er = 1)W Was	te Water = WW		<i></i>
Tullie Scall / TOE	tumarounds.**	Point Count	\$	ž	1	Scan]]]		울							= Other			
Organics24 hr3 day5 Day			8.	£		Metals				<u> </u>	5			*AS	M E1	792 aj	proved wit	pa media only**		
MICROBIOLOOY LABORATORY HOURS: Weekdays: 9am - 6		=	. 🍟 🖟	8	1					5 5		<u> </u>	S PE							
E.coli O157:H7, Coliforms, S.aureus 24 hr 2 Da	• — •	\rightar{\text{g}}{\text{g}}	7402	SOFF	_	- Analyte(s) TCLP, Welding Fume,				구	Quantification	antifical	S OT OT						ļ	
Salmonella, Listeria, E.coli, APC, Y & M48 Hr3-5 [·•		" ≃ "	2 8	Respirable	l g		1 1.	11	Aunt +/-	d	Ouentife	S S	1	1				 	
	48 Hr3 Day5 Da			7400B,	<u>§</u>	S P	l ₌ l	*	Ш	XI.	1 1	71.1.	ALS A	i	1					
Tumaround times establish a laboratory priority, subject to laboratory volume an apply for afternours, weekends and holidays.		Short report,				Analyte(s)	Ē	Salmonella: +/- E.cofi O157:H7:		8 8	🕏 :	8	Ē	E	1				<u> </u>	
Special Instructions:		— ફૅ	AHERA,	7400A	Total,	₹ 2	8	Salmonella: E.cofi 0157:		خ قً	Ë	ا 🗐	‡ <u>S</u>	₫ "	Code	10rs				S. Arraina
Special instructions:		5	₹ }	- 74	(•	S 8	3	F 8	Steric	줤뷶	흫	<u>≨</u>	MPLER'S	9 9	ŭ	聲	Date	Time		nber (Laborato se Only)
Ollant annials ID a mhan (O militals)		- ₹	E E	FC.	DUST	METALS RCRA 8,	ORGANICS - METH	ல் ய		<u>₹ ய</u>	0 0	<u>: ≺ :</u>		Sample Volume (L) / Area	Matrix	# Containers	Collected			Se Uniy)
Client saniple ID number (Sample ID's must be unic	qua)	- -	F	n a	10	26	유		MICI	ROBI		Y	3	0-2	≥	**	mm/dd/yy	hn/mm a/p	12.25	
1 3W-040SIZ W			17	_					\sqcup		1	44		903	V		409112		6	5 79 6
2 3W-040512 N		프를 함.			1.1			11						903						\$ \$7
3 3W-040512 E									П		П	TT		903						Øg
		-			\vdash		.			-	1	11	1	203	++	- †	1		1	
4 BW 0405(2 S	181 1.1.1		Y		-	1.0 ° 1.0			╁╌┼		:	+	+	103	*		<u> </u>			
5			$oldsymbol{ol}}}}}}}}}}}}}}}}}$		<u> </u>			\perp	Ц			\coprod		L					[
6										A										
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8 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			+	_	1: ,			-	H	-	 	1-1	+ : -	-	1	\dashv		T 100 100 110	<u> </u>	
		┵	1	+-	-	<u> </u>		4		44	-	+	ļ			-+	<u> </u>	<u> </u>	-	
9			\geq	+					Щ	Ш	Ш	11		ļ					<u> </u>	
10						_						1:1:								
Number of samplas received: (Add	litional samples shall be listed	on atta	ched I	long fo	rm.))		_	$\overline{}$				<u> </u>			<u> </u>		<u></u>		
	ha a	in calcula	ations re												a agre	s that	submission	of the following sa	mples for requ	asta d
NOTE: REI will analyze incoming samples basets upon information received and will not i						syment te	กกรุฑ	ay iesu	alt in a	1.5%	month	y Intelle	st surchar	0.						
				omply w	vian pa															
NOTE: REI will analyze incoming samples based upon internation raceived and will not analysis as indicated on the Chain of Custody shall constitute an analytical services agree							1/09	slıı.						Sar	nole	Cond	ition:	On ice S	Sealed	Intact
NOTE: REI will analyze incoming samples based upon internation raceivad and will not analysis as indicated on the Chain of Custody shall constitute an analytical services agree	Fed Ex	days, fall	ture to c	Date	e/Tir	ne:	4-	sliz		4					nple (Sealed es / No c	Intact
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NOTE: REI will analyze incoming Samplea basels upon internation raceivad and will not to analysis as indicated on the Chain of Custody shall constitute an analytical services agree Relinquished By: Laboratory Use Only Received By:	Fed Ex	days, fail	ure to c	Date	e/Tir	ne:	-	Sliz Febone		LE MAIT T	Fax	 			np. (F					Yes / No
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NOTE: REI will analyze incoming Samples basels upon internation received and will not a analysis as indicated on the Chain of Custody shall constitute an analytical services agree Relinquished By: Laboratory Use Onto Received By: Contact Phone Email Fax Date Contact Phone Email Fax Date	Ped Ex Dale/Time: 4E/ 14/7 Time /0>/Uu	lnitials	e co	Date Contact	e/Tir	me: 4		Phone	<u>≥</u> ⊘) 		Ter Date	np. (F	·°) _	Ti	Yos/No Y	es / No C	Yes / No

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type	Structure Types
A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

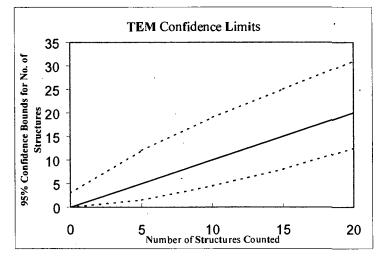
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
GA Tyce	-

15011000000000000	TOO COUNT	:
Client ;	RAR	
Sample Type (A=Air, D=Dust):	A	
Air yolume (L) or dust area (cm2)	903	
Oate received by lab	4/6/12	
Lab Job Number:	233221	
Lab Sample Number:	875207	(
	-144/6	•

F-Factor Calculation (Indirect Preps On	ly):
Fraetion of primary filter used	
Total Resuspension Volume (ml)	
Volums Applied to secondary filter (mi)	

Analyzed by	ME
Analysis date	4/6/12
Melhod (D=Direct, l=Indirect, IA≠Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Qrid Opening	Structure	No. of St	ructures	Qime	nsions	Identification	Mineral Class	Mineral Class		·	1 = yes, blank = no		
0110	Grid Opening	Туре	. Primary	Total	Lenath	Width	Identification	Amphibola	· C ·	NAM	Sketch/Comments	Sketch	Photo	EDS
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	(3-1	M			Pn	ex A.	5020	vace 5	-72	le	6.5			
	c3-3	M)			Dr	er B	NA	1-11	4	6/12				
	F1-3	M			,				1 4	/				
3	14-6	M												
	K4-6	M.												
	14-4	M												
	13-6	S									,			
	K3-4	M						-						

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C ≈ Chrysotile

NAM = Non-asbestos material

T://Worksheet in TEM Bench sheet dec

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N.S
Voltage (KV)	100 KV
Magnification	21510X 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filler Area (mm2)	
QA Type	

Client :	RAR	
Sample Type fA=Air, D=Dust):	A	
Air volume (L) or dust area (cm2)	903	
Date received by lab	4/10/12	
Lab Job Number:	23322	
Lab Sample Number:	875206	7
	neyko	ē

Analyzed by	M
Anatysis date	4/6/12
Method (O=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting niles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):	4446
Fraction of primaly filtar used	
Total Resuspension Volume (ml)	
Volunta Applied to secondary fitter (ml)	

Grid	Grid Opening	Structure	No. of St	ructures	Oime	nsions	Identification	Mineral Class				1 = ye	es, blank	= no
Ond	City Operang	Туре	. Primary	Total	Length	Width	red miloution	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
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	63-4	M								1				,
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B	H3-1	Μ		. (2	(Co		_					
	1136	M												
	144-4	M												
	81-6	M												
		,						·						

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magntfication	20KX -10KX
Grid openina area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

are count
RAR
A
903
4/6/12
233221
875,208

Analyzed by	M
Analysis date	4/6/12
Method (D=Direct, l=Indirect, IA=Imilrect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Oate Analyzed

F-Factor Calculation (Indirect Preps Only): Fraction of primary filter used Total Resuspension Volume (ml)				
Fraction of primary filter used				
Total Resuspension Volume (ml)				
Volume Applied to secondary filter (mi)				

Grid	Grid Opening	Structure	No. of Structures		Dime	Dimensions		Mineral Class	eral Class		·	1 = yes, blank = no		= no
0	One Operang	Туре	Primary	Total	Length	Width	Identification	Amphibole	C ·	NAM	Sketch/Comirents	Sketch	Photo	EDS
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	246	M									·		,	<u> </u>
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b	F4-6	M												
	646	M								_				
	C4-6	M												
	B4-6	M												

LA = Libby-lype amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instaiment	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX =10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

	1210 002111
Client:	RAR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	903
Date recaived by lab	4/6/12
Lab Job Number:	233221
Lab Sample Number:	875209

F-Factor Calculation (Indirect Prepa O	nly):
Fraction of primary filler used	,
Total Resuspension Volume (ml)	· · · · · · · · · · · · · · · · · · ·
Votuma Applied to secondary filter (ml)	

Analysis and the	-111
Analyzed by	THE
Anatysis date	4/6/12
Method (D=Direct, !=Indirect, IA⇒Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Dale Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond	Cha Opening	Туре	. Primary	Total	Lenath	Width	TO TRINGUIO	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
R	E6-4	M						,						
	C6-41	M			. Ones	A-0	50% ins	aes 5	Bde	bis				
	96-3	M		·	Pre	B	1	enll	- 4	16/	12			
	43-3	M								7				
B	K5-1	MD												
	K5-3	M										·		
	166-1	M												
	FSY	M												
	F4-1	M												

LA = Libby-fype amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensifivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



April 10, 2012

Laboratory Code: Subcontract Number:

res Na

Laboratory Report: Project # / P.O. # Project Description: RES 233311-1 None Given

3rd West Sub - RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. Is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 233311-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 10 | 866-0; TDH: #30-0015

TABLE |. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 233311-1

Client:

R & R Environmental

Client Project Number / P.O.:

None Given

Client Project Description:

3rd West Sub - RMP

Date Samples Received:

April 9, 2012

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

April 10, 2012

Client ID Number	Lab ID Nu	Lab ID Number		Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)	Deteored	(s/cc)	(s/cc)	° (s/mm²)
3W-040612 W	EM	876130	0.0900	898	ND	0.0048	BAS	BAS
3W-040612 N	EM	876131	0.0900	898	ND	0.0048	BAS	BAS
3W-040612 E	EM	87 6132	0.0900	898	ND	0.0048	BAS	BAS
3W-040612 S	EM	876133	0.0900	896	ND	0.0048	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity Average Grid Opening in mm² = 0.010 Effective Filter Area = 385 sq mm

DATA QA

Due Date: 4-18 12 Due Time:_

M01 Logan St. Denver, CO 60316 • Ph: 303 984-1686 • Fax 303-477-4279 • Toll Free : 666 RESI-ENV

Paga ___1__ of __

	Pager : 303-50 INVOICE TO: (IF			MT										CO	NTAC	T IMI	-00	MATIC	AN:	· -		
Company: RGR Environmental	Company:	<u> </u>	LIXE	,		Contac	* ()	21.0	7	26.1	-al	01		-	1170		Conta		JI4.			· · · · · · · · · · · · · · · · · · ·
Address: 47 W 4X005 #2	Addrass:					Contact: Drive Roskelly Phono:								Phone:								
Sandy, Ut. 84070						Fax:											Fax:					
ALVOY INT. OWID						Cell/ps	ger. &	Ð1	54	<i>11</i> -	10	35					Coll/p	Bger:				
Project Number and/or P.O. #:	<u> </u>					Final (Dete Dd	liverst	de Err	all Ac	dress									***************************************		
Project Description/Location: 35 West Sub-RMP	· · · · · · · · · · · · · · · · · · ·						day	e	<u> </u>	re	mi	re2i	On									
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Salmonella, Listeria, E.coll, APC, Y & M 48 Hr3-5 Day		ᇎ	= ₩	ő	Respirable tyte(s)			.	1	2	3 8	E	S S	- 1			- 1					
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apply for afterheurs, wookends and holidays.**	<u>ian digimi sekali bet</u>	Short report,	AHERA, Jant, Mic	7400A,	- Total, -S - Ang	RCRAS, TCLP, We	Satmonella:	coli 0157:H7:	료	‡	볡	*	* S	- [Sample Volume (L) / Area	æ	978					in terminal security and the security of
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Client sample ID number (Sample ID's must be únique)		트	Sea .	=		<u> </u>	-	M	CRO	BIO	LOGY	<u> </u>	8	_		ž	#:	rgm/dg/		hh/mm a/p	116.713	
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7 8 9 10 Number of samples roceived: (Addition NOTE: REI will analyze incoming eamples based these histormation readyed and will not be re analysis as indicated on this Citien of Custody studi constitute an analytical services agreema	isponsible for arrors or omissions in ca	lcuisti	ons resu re to cerr	itlog fro	m the ine h paymen	t terms	y otonic may m	SUI E	lata. 6	By sign	ning conthly	literate	ompany sat surch	rapra:	Т	agree:				na lollowing sam		quested
9 10 Number of samples roceived: (Addition NOTE: REI will analyze incoming eamples based these information readyed and will not be reanalysis as indicated on this Civiln of Custody sitali constitute an analytical services agreematic Relinquished By: Laboratory Use Only	asponsible for arrors or omissions in ce and with payment terms of NET 30 days	elculeti s, faitu	ons resu re to cerr	itiog fro aply with Date/	m the ine n paymen Timo:	40	may re	SUI E	ata. 6	By sign	ning c	lient/c	ompsny sat surch	rapra:	Sam	-	ondi		Or	na loftowing sam	ples for re	
7 8 9 10 Number of samples roceived: (Addition NOTE: REI will analyze incoming eamples based these fiftermation readyed and will not be reanelysis as indicated on this Citoth of Custody stual constitute an analytical services agreement Relinquished By: Laboratory Lise Only Received By: Oate	esponsible for arrors or omissions in ca int with payment terms of NET 30 days FeLEx e/Tims:	alculeti 3, faitu	ons resure to com	Date/	m the ine h psymen	40	bli z	SILL T		% m	onthly	lilent/c interes	ompany sat surch	arge.	Sam	ple C p. (F	ondi	tion:	Or Ye:	a lollowing sam	ealed	iquested Intact
9 10 Number of samples roceived: (Addition NOTE: REI will analyze incoming eamples based these information readyed and will not be reanalysis as indicated on this Civiln of Custody sitali constitute an analytical services agreematic Relinquished By: Laboratory Use Only	asponsible for arrors or omissions in ce and with payment terms of NET 30 days	alculeti s, faitu 2	ons resulte to com	itiog fro aply with Date/	m the ine n paymen Timo:	40	6 l 2		lata. 6) Fa	onthly	tient/ciniore	ompany set surch	arge.	Sam	ple C	ondi	tion:	Or	a loftowing sam	ealed	Intact Yesy No

7-2011_version 1

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

۸	Amosite	Б -	Fiber
A -	Amosite	г —	riber
An =	Anthophyllite	B =	Bundle
C =	Chrysotile	C =	Cluster
Cr =	Crocidolite	M =	Matrix
$T \cdot =$	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

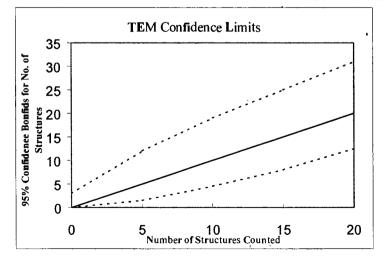
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	RAR
Samole Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	898
Date received by lab	4/9/10
Lab Job Numben	233311
Lab Sample Numben	876130

Analyzed by	JB
Analysis date	4/10/12
Method (D=Oirect, I=Indirect, IA=Indirect, ashed)	ָ ס
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	•
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class	1			1 = ye	es, blank	= no
Ont	ond oponing	Туре	Primary	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Pholo	EDS
A	43-1	ND												
	F3-1	√ D			Pm	o A	80%	trust	5%	sebn	<u>S</u>			
	E3-1	MD			Pi	s B	1100/	1 1 7 .	مراد	bon	S			:
	C3-1	ND			7									L
	E4-1	MD						By	10/12					_
B	K3-4	ND				: 3		// /		<u> </u>				
	H3-4	DN												
	E3-4	M D									·			
	E3-3	ND										L		
_														

Raservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltaoe (KV)	100 KV
Magnification	20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client :	RAR
Sample Type (A=Air, D≕Dust):	A
Air volume (L) or dust area (cm2)	898
Dale received by lab	4/9/10
Lab Job Number:	233311
Lab Sample Number:	876131

Analyzed by	JB
Analysis date	4/10/12
Method (D=Oirect, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Dale Analyzed

F-Factor Calculation (Indirect Preps Only):					
Fraction of primary Riter used					
Total Resuspension Volume (ml)					
Volume Applied to secondary filter (ml)					

Grid	Grid Opening	Structure	No. of Structures_		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
0.10	Ond Opcining	Туре	Primary	Total	Length	Width	100110110011011	Amphibole	С_	NAM	Sketch/Comments	Sketch	Photo	EOS
A	L3-3	ND:										·		
	K3-3	ND			Pm	οA	60%	ratant	5%	60.	N's			
	H3-3	ND			Pap	B	70%	/ /	5°n	1/2				
	63-3	ND		·		·						<u> </u>		
	F3-3	MD						1B 41	VOLL		Ċ			
B	G3-6	ND							7					
	F3-6	ND												
4	E3-6	ND					,							
,	C3-6	ND												
							4							

Raservoirs Environmental, Inc. TEM Astrestos Structure Count

Г Т	
Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
	•
Voltage (KV)	100 KV
Magnificatkm	20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RAR
Samole Type (A=Air, D=Dust):	A
Air volume (L) or dust area (crn2)	898
Date received by lab	419/10
Lab Job Number:	233311
Lab Sample Number:	876132

Analyzed by	B
Analysis dats	4/10/12
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure			Dimensions		Identification	Mineral Class			·	1 = yes, blank = no		
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comnuents	Sketch	Photo	EDS
A	K5-1	ND												ļ
	H5-1	ND			Pup	A	70-4	ibent	3-5	7 de	bn's			·
	G5-1	ND			Po	B	80 %	about	3-5	%	ebrs			L
	F5-1	ND			_			v						
	E5-1	ND					B.	VIOLIZ				}		
B	H4-3	MD						/ /						
	G4-3	ND					·							
	F4-3	٧D					,	·						
	E4-3	ND												

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Volfage (KV)	100 KV
Magnification	20K) 10KX
Grid opening area (mm2)	0.01
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filler Area (mm2)	
QA Type	

Client :	RAR
Sample Tyoe (A=Air, D=Dust):	A
Air yolume (L) or dust area (cm2)	896
Date received by lab	419110
Lab Job Number:	233311
Lab Sample Number:	876133

~D
4/10/12
" D
AH
Month Analyzed
Date Analyzed

F-Factor Calculation (Indirect Preps	Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Voluma Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
Ond		Туре	Primary	Total	Length	Width		Amphibole	С	1NAM	Sketch/Comments	Sketch	Photo	EDS
A	64-3	ND								· .				
	H4-3	NO			Pn	o A	80%	about.	5/0	ebri	\$			
	643	8			P	0B	caol	what s	-0/	debr				
	F4-3	ND												
	E4-3	D						1B 4/	0/12					
	C4-3	ND						/ //	/					
B	14-4	ND					. 7							
	64-4	ND												
	F4-4	V												
						-								

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Eauations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter mafrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

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micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{A verage GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening